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TITLE: Method and apparatus for managing a storage system using snapshot copy operations with snap groups

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Brief Summary Text - BSTX:

A data file snapshot copy is an improvement over this type of copy process.

This <u>snapshot copy</u> process includes a dynamically mapped <u>virtual</u> data storage

subsystem. This subsystem stores data files received from a processor in

back-end data storage devices by mapping the processor assigned data file

identifier to a logical address that identifies the physical storage location

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of the data. This dynamically mapped virtual data storage subsystem performs a

copy of a data file by creating a duplicate data file pointer to a data file

identifier in a mapping table to reference the original data file. In this

dynamically mapped virtual data storage subsystem, the data files are referred

to as a collection of "virtual tracks" and each data file is identified by

unique virtual track addresses (VTAs). The use of a mapping table provides the

opportunity to replace the process of copying the entirety of a data file in

the data storage devices with a process that manipulates the contents of the

mapping table. A data file appears to have been copied if the name used to

identify the original data file and the name used to identify the copy data

file are both mapped to the same physical data storage location.

Detailed Description Text - DETX:

Further, the use of snap groups restricts which <u>virtual</u> volumes are allowed to

be paired for a <u>snapshot copy</u> operation. According to the present invention.

when selecting a source <u>virtual</u> volume for a <u>snapshot copy</u> operation, the

target <u>virtual</u> volume must be a <u>virtual</u> volume within the same snap group

rather than any <u>virtual</u> volume in the storage subsystem.

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Detailed Description Text - DETX:

These virtual track table pages each contain an entry for each virtual track.

Also located within each <u>virtual</u> track table page is data, which defines the

logical address of a <u>copy of the virtual</u> track table page comprising a **virtual**

track table page instance, which has been written on back-end data storage

devices during the <u>snapshot copy</u> or write operation. These back-end storage

devices may be, for example, storage devices 202 in storage subsystem 200 in

FIG. 2. This logical address identifies the physical storage location in the

back-end data storage devices that contains the most recently written instance

of the present virtual track table page.

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